

Response to Office Action dated April 3, 2007
U.S. Application No. 10/646,134

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A process of splitting bitumen into a heavy and light fraction and emulsifying the heavy fraction for use as a fuel comprising:

a) splitting bitumen into a heavy and a light fraction from ~~a process chosen from the group consisting of a two stage flash separation process,~~ a gas plant diluent separation process wherein the gas plant diluent has a composition comprising 61-81 LV% paraffins, 15-25 LV% naphthenes and 5-13 LV% aromatics, and ~~any combination thereof~~ the ratio of gas plant diluent to bitumen is 1:1 to 10:1; and,

b) emulsifying the heavier fraction with water to form a burnable fuel.

2. (original) A process as in claim 1 wherein the cut point of the heavy and light fraction is 490°C to 510°C.

3. (original) A process as in claim 1 wherein the cut point of the heavy fraction and light fraction is 500°C.

4. (canceled)

5. (currently amended) A process as in ~~claim 4~~ claim 1 wherein the ratio of gas plant diluent to bitumen is 10:1.

6. (canceled)

7. (currently amended) A process as in ~~claim 6~~ claim 1 wherein the gas plant diluent has a composition comprising 71 LV% paraffins, 20 LV% naphthenes, and 9 LV% aromatics.

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8. (currently amended) A process as in ~~claim 4~~ claim 1 wherein the gas plant diluent separation process comprises:

a) mixing gas plant diluent and bitumen in a ratio of 10:1 to 1:1 (diluent:bitumen) to create a bitumen/diluent mixture;

b) allowing the bitumen/diluent mixture to settle for at least one and no more than twenty four hours;

c) separating a bottom resid portion and a deasphalted light portion; and,

d) flashing remaining diluent from the bottom resid portion.

9. (original) A process as in claim 8 wherein the bitumen:diluent ratio is 1:10 to 1:5.

10. (original) A process as in claim 1 wherein the ratio of water to heavier fraction in step b) is 10:90 to 50:50 by weight.

11. (original) A process as in claim 10 wherein the ratio of water to heavier fraction in step b) is 30:70 by weight.

12. (original) A process as in any one of claims 1-11 further comprising the step of burning the fuel in a combustion chamber to produce high pressure steam for steam-based bitumen recovery to recover bitumen as a produced water/bitumen mixture from an underground reservoir.

13. (previously presented) A process as in claim 1 wherein emulsifying the heavier fraction comprises:

a) mixing water and surfactant to form a water/surfactant mixture;

b) adding the water/surfactant mixture to a heated heavier fraction to form a heated emulsion; and,

c) adding cool water to the heated emulsion to form a cooled emulsion having a temperature below the boiling point of water at ambient pressure.

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14. (original) A process as in claim 13 wherein the average particle size of the emulsion is less than 10 microns.

15. (original) A process as in claim 13 wherein the average particle size of the emulsion is at least 2 and not more than 5 microns.

16. (original) A process as in claim 13 wherein the total amount of water (by weight) added in steps a) and c) are equal.

17. (currently amended) An integrated process of steam-based bitumen recovery and steam generation comprising:

a) splitting bitumen into a heavy fraction and a light fraction ~~in process chosen from the group consisting of a two-stage flash separation process, from a gas plant diluent separation process~~ wherein the gas plant diluent has a composition comprising 61-81 LV% paraffins, 15-25 LV% naphthenes and 5-13 LV% aromatics, and ~~any combination thereof~~ the ratio of gas plant diluent to bitumen is 1:1 to 10:1;

b) emulsifying the heavy fraction with water and an emulsifier to form a burnable fuel;

c) burning the fuel in a combustion chamber to produce high pressure steam for steam-based bitumen recovery to recover bitumen as a produced water/bitumen mixture from an underground reservoir;

d) separating the produced water/bitumen mixture in a bitumen/water separator to produce bitumen, a portion of which is used for step a) and produced water; and,

e) subjecting the produced water to a water treatment process to remove contaminants and to produce a treated water suitable for steam generation in step c).